

## CLAIMS

What is claimed is:

1. A method of inferring engine coolant temperature in cylinder head temperature sensor equipped vehicles comprising the steps of:

measuring the cylinder head temperature;

5 calculating the engine coolant temperature from the measured cylinder head temperature as a function of at least one vehicle operational state;

generating a signal for the calculated engine coolant temperature; and

10 sending the generated signal to a display.

2. A method according to claim 1, wherein the vehicle operational state is engine revolutions per minute.

15 3. A method according to claim 2, wherein the vehicle operational state is cylinder air charge temperature.

4. A method according to claim 1, wherein the vehicle operational states are both engine revolutions per minute  
20 and cylinder air charge temperature.

5. A method according to claim 1, further including the step of filtering the calculated engine coolant temperature so as to prevent inaccurate display readings resulting from  
25 sudden changes in vehicle operational states, the filter step performed prior to the step of generating a signal.

6. A method according to claim 5, further including the step of recording the difference between the measured  
30 cylinder head temperature and the filtered engine coolant temperature.

7. A method according to claim 6, further including the  
step of storing the recorded difference in keep alive  
memory.

8. A method according to claim 7, further including the  
steps of:

decaying the difference between the measured cylinder  
head temperature and the filtered engine coolant  
temperature as an exponential function of soak time upon  
vehicle startup;

generating an initial, startup signal by subtracting  
the measured cylinder head temperature from the last  
recorded difference stored in keep alive memory; and  
sending an initial, startup signal to the display.

9. A method of inferring engine coolant temperature in  
cylinder head temperature sensor equipped vehicles  
comprising the steps of:

measuring the cylinder head temperature;  
calculating the engine coolant temperature from the  
measured cylinder head temperature as a function of engine  
revolutions per minute and cylinder air charge temperature;  
generating a signal for the calculated engine coolant  
temperature; and  
sending the generated signal to a display.

10. A method according to claim 9, further including the  
step of filtering the calculated engine coolant temperature  
so as to prevent inaccurate display readings resulting from  
sudden changes in revolutions per minute and air charge  
temperature, the filtering step performed prior to the step  
of generating a signal.

11. A method according to claim 10, further including the  
step of recording the difference between the measured  
70 cylinder head temperature and the filtered engine coolant  
temperature.

12. A method according to claim 11, further including the  
step of storing the recorded difference in keep alive  
75 memory.

13. A method according to claim 12, further including the  
steps of:

decaying the difference between the measured cylinder  
80 head temperature and the filtered engine coolant  
temperature as an exponential function of soak time upon  
vehicle startup;

generating an initial, startup signal by subtracting  
the measured cylinder head temperature from the last  
85 recorded difference stored in keep alive memory; and  
sending an initial, startup signal to the display.

14. A system for inferring engine coolant temperature in  
cylinder head temperature sensor equipped vehicles  
90 comprising:

a cylinder head temperature sensor; and  
a controller for calculating the engine coolant  
temperature from the measured cylinder head temperature as  
a function of engine revolutions per minute and cylinder  
95 air charge temperature, wherein the controller generates a  
signal for the calculated engine coolant temperature and  
sends the generated signal to a display.

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15. A system according to claim 14, wherein the controller  
105 further filters the calculated engine coolant temperature  
so as to prevent inaccurate display readings resulting from  
sudden changes in revolutions per minute and air charge  
temperature, the filtering performed prior to generation of  
the signal.

110 16. A system according to claim 15, wherein the controller  
further records the difference between the measured  
cylinder head temperature and the filtered engine coolant  
temperature.

115 17. A system according to claim 16, wherein the controller  
further stores the recorded difference in keep alive  
memory.

120 18. A system according to claim 17, wherein the controller  
further:

decays the difference between the measured cylinder  
head temperature and the filtered engine coolant  
temperature as an exponential function of soak time if  
125 determined that the cylinder head temperature measurement  
was taken at vehicle startup;

generates an initial, startup signal by subtracting  
the measured cylinder head temperature from the last  
recorded difference stored in keep alive memory; and  
130 sends an initial, startup signal to the display.